AMENDMENTS TO THE CLAIMS

Please amend claims 11, 12, 17, 18, 27, 28, 39, 40, 53, 54, 63, 65, 73, and 74 as set forth below.

Claims 1-10 are (CANCELED)

11. (CURRENTLY AMENDED) A thin film semiconductor device comprising a semiconductor thin film, a gate insulating film accumulated on one surface thereof, and a gate electrode accumulated entirely within a prescribed region of said semiconductor thin film through said gate insulating thin film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a first particle diameter on a substrate, and irradiating said substrate with an energy beam to convert said semiconductor thin film to polycrystalline silicon having a larger particle diameter than said first particle diameter~~ includes polycrystalline silicon having a first particle diameter, wherein said polycrystalline silicon is an irradiation converted substrate that in the prescribed region has a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a second particle diameter that is smaller than said first particle diameter;

a thin film transistor ~~is~~ integrated ~~and formed~~ in said prescribed region ~~by using~~through said semiconductor thin film ~~thus converted to polycrystalline silicon as an active layer~~, wherein said converted polycrystalline silicon semiconductor film has a single-shot irradiated region, and

a cross sectional shape of said energy beam is adjusted with respect to said prescribed region to consist of irradiating said prescribed region in its entirety at a time by a single shot irradiation, so that characteristics of said thin film transistor are made uniform; and

whereby said single-shot irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

12. (CURRENTLY AMENDED) A display device comprising a pair of substrates adhered to each other with a prescribed gap, and an electrooptical substance maintained in said gap, one of said substrates comprises a counter electrode, the other substrate comprises a pixel electrode and a thin film transistor driving said pixel electrode, and said thin film transistor

comprises a semiconductor thin film and a gate electrode accumulated entirely within a prescribed region of one surface of said semiconductor thin film through a gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a first particle diameter on said other substrate, and irradiating said other substrate with an energy beam to convert said semiconductor thin film to polycrystalline silicon having a particle diameter that is larger than said first particle diameter,~~ includes polycrystalline silicon having a first particle diameter, wherein said polycrystalline silicon is an irradiation converted substrate that in the prescribed region has a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a second particle diameter that is smaller than said first particle diameter;

a thin film transistor ~~is~~ integrated ~~and formed~~ in said prescribed region ~~by using~~ through said semiconductor thin film ~~thus converted to polycrystalline silicon as an active layer,~~ wherein said converted polycrystalline silicon semiconductor film has a single-shot irradiated region; and

a cross sectional shape of said energy beam is adjusted with respect to said prescribed region to consist of irradiating said prescribed region in its entirety at a time by a single shot irradiation, so that characteristics of said thin film transistor are made uniform; and

whereby said single-shot irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

Claims 13-16 are (CANCELED)

17. (CURRENTLY AMENDED) A thin film semiconductor device comprising a semiconductor thin film, a gate insulating film accumulated on one surface thereof, and a gate electrode accumulated entirely within a unit of said semiconductor thin film through said gate insulating thin film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a first particle diameter on a substrate, on which plural units are formed, and intermittently irradiating said substrate, so as to convert to polycrystalline silicon having a particle diameter that is larger than said first diameter,~~ includes polycrystalline silicon having a first particle diameter, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of amorphous silicon or

polycrystalline silicon having a second particle diameter that is smaller than said first particle diameter,

~~a cross-sectional shape of said energy beam is adjusted with respect to said unit to irradiate consist of irradiating an entirety of one or two or more units at a time by a single shot irradiation~~ wherein at least one unit of the semiconductor thin film is a single-shot irradiated unit based on a cross sectional shape of said energy beam, and

~~A~~ a thin film transistor is integrated and formed in said units thus subjected to irradiation at a time; and

~~Whereby~~ whereby said irradiated region is a borderless irradiated region; and

~~Wherein~~ whereby said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film

18. (CURRENTLY AMENDED) A display device comprising a pair of substrates adhered to each other with a prescribed gap, and an electrooptical substance maintained in said gap, one of said substrate comprises a counter electrode, the other substrate comprises a pixel electrode and a thin film transistor driving said pixel electrode, and said thin film transistor comprises a semiconductor thin film and a gate electrode accumulated entirely within a unit of one surface of said semiconductor thin film through a gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a first particle diameter on a substrate, on which plural units are formed, and intermittently irradiating said substrate, so as to convert said semiconductor thin film to polycrystalline silicon having a larger particle diameter than said first diameter,~~ includes polycrystalline silicon having a first particle diameter, wherein said polycrystalline silicon is an irradiation converted 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a second particle diameter that is smaller than said first particle diameter,

~~a cross-sectional shape of said energy beam is adjusted with respect to said unit to consist of irradiating an entirety of one or two or more units at a time by a single shot irradiation~~ wherein at least one unit of the semiconductor thin film is a single-shot irradiated unit, based on a cross sectional shape of said energy beam, and

a thin film transistor is integrated and formed in said units thus subjected to irradiation at a time; and

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

Claims 19-26 are (CANCELED)

27. (CURRENTLY AMENDED) A thin film transistor having a laminated structure comprising a semiconductor thin film, a gate insulating film accumulated on one surface thereof, and a gate electrode accumulated entirely within a prescribed region of said semiconductor thin film through said gate insulating thin film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a first particle diameter on a substrate, and consisting of irradiating said prescribed region of said substrate in its entirety with laser light having a prescribed cross sectional shape to convert said semiconductor thin film to polycrystalline silicon having a larger particle diameter than said first diameter,~~ includes polycrystalline silicon having a first particle diameter, wherein in the prescribed region said polycrystalline silicon has an irradiation converted 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a second particle diameter that is smaller than said first particle diameter, and

said semiconductor thin film is accumulated by alternately repeating said film forming step and said irradiation step without exposing said substrate to the air; and

whereby said irradiated region is a borderless irradiated region.

28. (CURRENTLY AMENDED) A display device comprising a pair of substrates adhered to each other with a prescribed gap, and an electrooptical substance maintained in said gap, one of said substrate comprises a counter electrode, the other substrate comprises a pixel electrode and a thin film transistor driving said pixel electrode, and said thin film transistor comprises a semiconductor thin film and a gate electrode accumulated entirely within a prescribed region of one surface of said semiconductor thin film through a gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a layer of about 20 nm amorphous silicon or polycrystalline silicon having a first particle diameter on a substrate, and consisting of irradiating said prescribed region of said substrate in its entirety with laser light having a prescribed cross sectional shape to convert to polycrystalline silicon having a larger~~

~~particle diameter than said first diameter,~~ includes polycrystalline silicon having a first particle diameter, wherein said polycrystalline silicon is an irradiation converted substrate that in the prescribed region has a 30 to 80 nm layer of amorphous silicon or polycrystalline silicon having a second particle diameter that is smaller than said first particle diameter; and

said semiconductor thin film is accumulated by alternately repeating said film forming step, where each additional formed film is about 1 nm, and said irradiation step without exposing said substrate to the air; and

whereby said irradiated region is a borderless irradiated region.

Claims 29-38 are (CANCELED)

39. (CURRENTLY AMENDED) A thin film transistor having a laminated structure comprising a semiconductor thin film, a gate insulating film accumulated on one surface thereof, and a gate electrode accumulated entirely within a prescribed region of said semiconductor thin film through said gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on a substrate, and irradiating said prescribed region of said substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width from upstand to downfall of 50 ns or more, so as to convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to a polycrystalline silicon at a time,~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate irradiated with pulse laser light having an emission time width from upstand to downfall of at least 50ns, and

a desired change to said energy intensity of said laser light from upstand to downfall of said pulse is applied to said polycrystalline silicon; and

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

40. (CURRENTLY AMENDED) A display device comprising a pair of substrates adhered to each other with a prescribed gap, and an electrooptical substance maintained in said

gap, one of said substrate comprises a counter electrode, the other substrate comprises a pixel electrode and a thin film transistor driving said pixel electrode, and said thin film transistor comprises a semiconductor thin film and a gate electrode accumulated entirely within a prescribed region of one surface of said semiconductor thin film through a gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on said other substrate, and irradiating said prescribed region of said substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width from upstand to down fall of 50 ns or more, so as to convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to a polycrystalline silicon at a time,~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate irradiated with pulse laser light having an emission time width from upstand to downfall of at least 50ns, ~~and~~

a desired change to said energy intensity of said laser light from upstand to downfall of said pulse is applied to said polycrystalline silicon; and

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

Claims 41-52 are (CANCELED)

53. (CURRENTLY AMENDED) A thin film transistor having a laminated structure comprising a semiconductor thin film, a gate insulating film accumulated on one surface thereof, and a gate electrode accumulated entirely within a prescribed region of said semiconductor thin film through said gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on a substrate, and irradiating said prescribed region of said substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width of 50 ns or more with maintaining said substrate in a non-oxidative atmosphere, so as to convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to a polycrystalline silicon at a time;~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-

single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate in the prescribed region that is irradiated with pulse laser light having an emission time width of at least 50ns in a non-oxidative atmosphere, ~~and~~

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

54. (CURRENTLY AMENDED) A display device comprising a pair of substrates adhered to each other with a prescribed gap, and an electrooptical substance maintained in said gap, one of said substrate comprises a counter electrode, the other substrate comprises a pixel electrode and a thin film transistor driving said pixel electrode, and said thin film transistor comprises a semiconductor thin film and a gate electrode accumulated entirely within a prescribed region of one surface of said semiconductor thin film through a gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on said other substrate, and irradiating said prescribed region of said substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width of 50 ns or more with maintaining convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to a polycrystalline silicon at a time~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate in the prescribed region that is irradiated with pulse laser light having an emission time width of at least 50ns,~~; and~~

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

Claims 55-62 are (CANCELED)

63. (CURRENTLY AMENDED) A thin film transistor having a laminated structure comprising a semiconductor thin film, a gate insulating film accumulated on one surface thereof, and a gate electrode accumulated entirely within a prescribed region of said semiconductor thin film through said gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on a substrate, and irradiating said prescribed region of said substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width of 50 ns or more under conditions in that said substrate is uniformly heated, so as to convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to polycrystalline silicon at a time;~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate in the prescribed region that is irradiated with pulse laser light having an emission time width of at least 50ns when said substrate is uniformly heated; ~~and~~

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

64. (CANCELED)

65. (CURRENTLY AMENDED) A display device comprising a pair of substrate adhered to each other with a prescribed gap, and an electrooptical substance maintained in said gap, one of said substrate comprises a counter electrode, the other substrate comprises a pixel electrode and a thin film transistor comprises a semiconductor thin film and a gate electrode accumulated entirely within a prescribed region of one surface of said semiconductor thin film through a gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on said other substrate, and irradiating said prescribed region of said substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width of 50 ns or more under conditions in that said other substrate is uniformly heated, so as to convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to a polycrystalline silicon at a time;~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate in the prescribed region that is irradiated with pulse laser light having an emission time width of at least 50ns when said substrate is uniformly heated, ~~and~~

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

Claims 66-72 are (CANCELED)

73. (CURRENTLY AMENDED) A thin film transistor having a laminated structure comprising a semiconductor thin film, a gate insulating film accumulated on one surface thereof, and a gate electrode accumulated entirely within a prescribed region of said semiconductor thin film through said gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on a substrate, and irradiating said prescribed region of said substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width of 50 ns or more under conditions in that said substrate is cooled to a temperature lower than room temperature, so as to convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to a polycrystalline silicon at a time;~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate in the prescribed region that is irradiated with pulse laser light having an emission time width of at least 50ns when said substrate is cooled to a temperature lower than room temperature, ~~and~~

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.

74. (CURRENTLY AMENDED) A display device comprising a pair of substrates adhered to each other with a prescribed gap, and an electrooptical substance maintained in said gap, one of said substrates comprises a counter electrode, the other substrate comprises a pixel electrode and a thin film transistor driving said pixel electrode, and said thin film transistor comprises a semiconductor thin film and a gate electrode accumulated entirely within a prescribed region of one surface of said semiconductor thin film through a gate insulating film,

wherein said semiconductor thin film ~~is formed by forming a 30 to 80 nm layer of non-single crystal silicon on said other substrate, and irradiating said prescribed region of said~~

~~substrate in its entirety with a pulse of laser light having a constant cross sectional area and an emission time width of 50 ns or more under conditions in that said other substrate is cooled to a temperature lower than room temperature, so as to convert said non-single crystal silicon contained in an irradiated area corresponding to said cross sectional area to a polycrystalline silicon at a time;~~ includes polycrystalline silicon, wherein said polycrystalline silicon is an irradiation converted substrate having a 30 to 80 nm layer of non-single crystal silicon, said converted polycrystalline silicon corresponds to a cross-sectional area of the substrate in the prescribed region that is irradiated with pulse laser light having an emission time width from upstand to downfall of at least 50ns when said substrate is cooled to a temperature lower than room temperature, ~~and~~

whereby said irradiated region is a borderless irradiated region; and

wherein said film forming step and said irradiating step are alternately repeated without exposing said substrate to air, to accumulate said semiconductor thin film.